

What is claimed is

1 1. A WDM (Wavelength Division Multiplexed)
2 transmission system, comprising:
3 a plurality of WDM optical networks, each of
4 said WDM optical network including
5 an optical signal receiver, and
6 an optical signal transmitter,
7 communicably connected to said optical
8 signal receiver, for transmitting, to said
9 optical signal receiver, a WDM signal having
10 a plurality of optical signals at respective
11 different wavelengths with adjusting each
12 of intensities of said plural optical
13 signals by performing preemphasis; and
14 a central controller, communicably connected
15 to said plural WDM optical networks via a plurality
16 of monitor/control lines respectively, including:
17 variation factor monitoring means for
18 monitoring one or more variation factors which
19 requires a new setting for said preemphasis
20 performed by said optical signal transmitter
21 of each said WDM optical network via a
22 respective one of the plural monitor/control
23 lines; and
24 preemphasis controlling means for
25 controlling a status of said

26 preemphasis by adjusting said setting for said
27 preemphasis performed by said optical signal
28 transmitter of each said WDM optical network
29 via the respective monitor/control line based
30 on the result of the monitoring carried out
31 by said variation factor monitoring means.

1 2. A WDM transmission system according to
2 claim 1, wherein:

3 said central controller further includes
4 storing means for storing intensity information of
5 intensities of the optical signals at the respective
6 different wavelengths, which optical signals are
7 included in the WDM signal output from said optical
8 signal transmitter of each said WDM optical network
9 when an initialization for amounts of said
10 preemphasis is performed, and time information of
11 the time when said initialization is performed;

12 said variation factor monitoring means
13 includes elapsed-time monitoring means for
14 monitoring, as one of said variation factors,
15 whether or not a predetermined time period has passed
16 since an initialization of a first optical signal
17 transmitter, which is the optical signal transmitter
18 of one of said plural WDM optical networks based
19 on said time information stored in said storing
20 means; and

21 said preemphasis controlling means includes
22 intensity controlling means for controlling, if the
23 result of said monitoring by said elapsed-time
24 monitoring means is positive, intensities of optical
25 signals in a WDM signal that is to be output from
26 said first optical signal transmitter by adjusting
27 amounts of said preemphasis performed by said first
28 optical signal transmitter in such a manner that
29 said last-named intensities of said first optical
30 signal transmitter become identical with those when
31 said initialization is performed, based on said
32 intensity information stored in said storing means.

1 3. A WDM transmission system according to
2 claim 2, wherein

3 said variation factor monitoring means of
4 said central controller further includes:

5 the-number-of-wavelengths-
6 information collecting means for collecting,
7 as one of said variation factors,
8 the-number-of-wavelengths information about
9 the number of wavelengths used for optical
10 signals of the WDM signal transmitted in said
11 each WDM optical network, and

12 the-number-of-wavelengths monitoring
13 means for monitoring whether or not there is
14 a change in the number of wavelengths used

15 for optical signals of the WDM signal
16 transmitted in a first WDM optical network,
17 which is the WDM optical network one of said
18 plural WDM optical networks, based on said
19 the-number-of-wavelengths information,
20 which has been collected by said
21 the-number-of-wavelengths collecting means;
22 and

23 said preemphasis controlling means of said
24 central controller includes:

25 amount-of-preemphasis computing means
26 for computing, if the result of said
27 last-named monitoring by said
28 the-number-of-wavelengths monitoring means
29 is positive, amounts of preemphasis that is
30 to be performed on the plurality optical
31 signals of the WDM signal in said first optical
32 network in accordance with the change in the
33 number of wavelengths, which change is
34 monitored as said the-number-of- wavelengths
35 information by said wavelength monitoring
36 means, and

37 amount-of-preemphasis controlling means
38 for controlling an optical signal transmitter
39 said first WDM optical network in such a manner
40 that said first particular WDM optical network
41 performs preemphasis of the last-named

42 amounts, which has been computed by said
43 amount-of-preemphasis computing means.

1 4. A WDM transmission system according to
2 claim 3, wherein

3 said variation factor monitoring means of
4 said central controller includes:

5 signal-quality-information collecting
6 means for collecting, as one of said variation
7 factors, signal quality information about a
8 quality of WDM signal, which is transmitted
9 in said each WDM optical network, at the time
10 when being received by said individual optical
11 receiver therein,

12 threshold-value-information retaining
13 means for retaining threshold value
14 information of threshold values of qualities
15 of said WDM signal transmitted in said each
16 WDM optical networks, and

17 signal-quality monitoring means for
18 monitoring whether or not said signal quality
19 information for a second WDM optical network,
20 which is the WDM optical network one of said
21 plural WDM optical networks, is equal to or
22 smaller than said threshold value for said
23 particular WDM optical network, which
24 information is retained in said

25 threshold-value-information retaining
26 means; and
27 said preemphasis controlling means of said
28 central controller includes quality controlling
29 means for controlling, if the result of last-named
30 monitoring by said signal-quality monitoring means
31 is positive, the intensities of optical signals in
32 a WDM signal that is to be transmitted in said second
33 WDM optical network by adjusting amounts of
34 preemphasis that is to be performed on said second
35 WDM optical network in such a manner that signal
36 quality information of the last-named WDM signal
37 transmitted in said second WDM optical network
38 becomes greater than said last-named threshold
39 value.

1 5. A WDM transmission system according to
2 claim 4, wherein said signal-quality-information
3 collecting means periodically collects said signal
4 quality information.

1 6. A WDM transmission system according to
2 claim 4, wherein
3 said variation factor monitoring means of
4 said central controller further includes
5 alarm-information receiving means for receiving,
6 as one of said variation factors, alarm information

7 of an alarm issued over the WDM signal transmitted
8 in each said WDM optical network; and
9 said signal-quality-information collecting
10 means starts, upon receipt of said alarm by said
11 alarm receiving means, the collecting of said signal
12 quality information of the WDM signal transmitted
13 in each said optical network, which issued said
14 received alarm information.

1 7. A WDM transmission system according to
2 claim 5, wherein

3 said variation factor monitoring means of
4 said central controller further includes
5 alarm-information receiving means for receiving,
6 as one of said variation factors, alarm information
7 of an alarm issued over the WDM signal transmitted
8 in each said WDM optical network; and
9 said signal-quality-information collecting
10 means starts, upon receipt of said alarm by said
11 alarm receiving means, the collecting of said signal
12 quality information of the WDM signal transmitted
13 in each said optical network, which issued said
14 received alarm information.

1 8. A WDM transmission system according to
2 claim 2, wherein

3 said variation factor monitoring means of said

4 central controller includes:
5 signal-quality-information collecting
6 means for collecting, as one of said variation
7 factors, signal quality information about a
8 quality of WDM signal, which is transmitted
9 in said each WDM optical network, at the time
10 when being received by said individual optical
11 receiver therein,
12 threshold-value-information retaining
13 means for retaining threshold value
14 information of threshold values of qualities
15 of said WDM signal transmitted in said each
16 WDM optical networks, and
17 signal-quality monitoring means for
18 monitoring whether or not said signal quality
19 information for a second WDM optical network,
20 which is the WDM optical network one of said
21 plural WDM optical networks, is equal to or
22 smaller than said threshold value for said
23 particular WDM optical network, which
24 information is retained in said
25 threshold-value-information retaining
26 means; and
27 said preemphasis controlling means of said
28 central controller includes quality controlling
29 means for controlling, if the result of last-named
30 monitoring by said signal-quality monitoring means

31 is positive, the intensities of optical signals in
32 a WDM signal that is to be transmitted in said second
33 WDM optical network by adjusting amounts of
34 preemphasis that is to be performed on said second
35 WDM optical network in such a manner that signal
36 quality information of the last-named WDM signal
37 transmitted in said second WDM optical network
38 becomes greater than said last-named threshold
39 value.

1 9. A WDM transmission system according to
2 claim 8, wherein said signal-quality-information
3 collecting means periodically collects said signal
4 quality information.

1 10. A WDM transmission system according to
2 claim 8, whrerein
3 said variation factor monitoring means of
4 said central controller further includes
5 alarm-information receiving means for receiving,
6 as one of said variation factors, alarm information
7 of an alarm issued over the WDM signal transmitted
8 in each said WDM optical network; and
9 said signal-quality-information collecting
10 means starts, upon receipt of said alarm by said
11 alarm receiving means, the collecting of said signal
12 quality information of the WDM signal transmitted

13 in each said optical network, which issued said
14 received alarm information.

1 11. A WDM transmission system according to
2 claim 9, wherein
3 said variation factor monitoring means of
4 said central controller further includes
5 alarm-information receiving means for receiving,
6 as one of said variation factors, alarm information
7 of an alarm issued over the WDM signal transmitted
8 in each said WDM optical network; and
9 said signal-quality-information collecting
10 means starts, upon receipt of said alarm by said
11 alarm receiving means, the collecting of said signal
12 quality information of the WDM signal transmitted
13 in each said optical network, which issued said
14 received alarm information.

1 12. A WDM transmission system according to
2 claim 1, wherein
3 said variation factor monitoring means of
4 said central controller further includes:
5 the-number-of-wavelengths-
6 information collecting means for collecting,
7 as one of said variation factors,
8 the-number-of-wavelengths information about
9 the number of wavelengths used for optical

10 signals of the WDM signal transmitted in said
11 each WDM optical network, and
12 the-number-of-wavelengths monitoring
13 means for monitoring whether or not there is
14 a change in the number of wavelengths used
15 for optical signals of the WDM signal
16 transmitted in a first WDM optical network,
17 which is the WDM optical network one of said
18 plural WDM optical networks, based on said
19 the-number-of-wavelengths information,
20 which has been collected by said
21 the-number-of-wavelengths collecting means;
22 and
23 said preemphasis controlling means of said
24 central controller includes:
25 amount-of-preemphasis computing means
26 for computing, if the result of said
27 last-named monitoring by said
28 the-number-of-wavelengths monitoring means
29 is positive, amounts of preemphasis that is
30 to be performed on the plurality optical
31 signals of the WDM signal in said first optical
32 network in accordance with the change in the
33 number of wavelengths, which change is
34 monitored as said the-number-of- wavelengths
35 information by said wavelength monitoring
36 means, and

37 amount-of-preemphasis controlling means
38 for controlling an optical signal transmitter
39 said first WDM optical network in such a manner
40 that said first particular WDM optical network
41 performs preemphasis of the last-named
42 amounts, which has been computed by said
43 amount-of-preemphasis computing means.
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1 13. A WDM transmission system according to
2 claim 12, whrerein

3 said variation factor monitoring means of
4 said central controller includes:

5 signal-quality-information collecting
6 means for collecting, as one of said variation
7 factors, signal quality information about a
8 quality of WDM signal, which is transmitted
9 in said each WDM optical network, at the time
10 when being received by said individual optical
11 receiver therein,

12 threshold-value-information retaining
13 means for retaining threshold value
14 information of threshold values of qualities
15 of said WDM signal transmitted in said each
16 WDM optical networks, and

17 signal-quality monitoring means for
18 monitoring whether or not said signal quality

19 information for a second WDM optical network,
20 which is the WDM optical network one of said
21 plural WDM optical networks, is equal to or
22 smaller than said threshold value for said
23 particular WDM optical network, which
24 information is retained in said
25 threshold-value-information retaining
26 means; and
27 said preemphasis controlling means of said
28 central controller includes quality controlling
29 means for controlling, if the result of last-named
30 monitoring by said signal-quality monitoring means
31 is positive, the intensities of optical signals in
32 a WDM signal that is to be transmitted in said second
33 WDM optical network by adjusting amounts of
34 preemphasis that is to be performed on said second
35 WDM optical network in such a manner that signal
36 quality information of the last-named WDM signal
37 transmitted in said second WDM optical network
38 becomes greater than said last-named threshold
39 value.

1 14. A WDM transmission system according to
2 claim 13, wherein said signal-quality-information
3 collecting means periodically collects said signal
4 quality information.

1 15. A WDM transmission system according to
2 claim 13, whrerein

3 said variation factor monitoring means of
4 said central controller further includes
5 alarm-information receiving means for receiving,
6 as one of said variation factors, alarm information
7 of an alarm issued over the WDM signal transmitted
8 in each said WDM optical network; and

9 said signal-quality-information collecting
10 means starts, upon receipt of said alarm by said
11 alarm receiving means, the collecting of said signal
12 quality information of the WDM signal transmitted
13 in each said optical network, which issued said
14 received alarm information.

1 16. A WDM transmission system according to
2 claim 14, whrerein

3 said variation factor monitoring means of
4 said central controller further includes
5 alarm-information receiving means for receiving,
6 as one of said variation factors, alarm information
7 of an alarm issued over the WDM signal transmitted
8 in each said WDM optical network; and

9 said signal-quality-information collecting
10 means starts, upon receipt of said alarm by said
11 alarm receiving means, the collecting of said signal
12 quality information of the WDM signal transmitted

13 in each said optical network, which issued said
14 received alarm information.

1 17. A WDM transmission system according to
2 claim 1, wherein
3 said variation factor monitoring means of
4 said central controller includes:

5 signal-quality-information collecting
6 means for collecting, as one of said variation
7 factors, signal quality information about a
8 quality of WDM signal, which is transmitted
9 in said each WDM optical network, at the time
10 when being received by said individual optical
11 receiver therein,

12 threshold-value-information retaining
13 means for retaining threshold value
14 information of threshold values of qualities
15 of said WDM signal transmitted in said each
16 WDM optical networks, and

17 signal-quality monitoring means for
18 monitoring whether or not said signal quality
19 information for a second WDM optical network,
20 which is the WDM optical network one of said
21 plural WDM optical networks, is equal to or
22 smaller than said threshold value for said
23 particular WDM optical network, which
24 information is retained in said

25 threshold-value-information retaining
26 means; and
27 said preemphasis controlling means of said
28 central controller includes quality controlling
29 means for controlling, if the result of last-named
30 monitoring by said signal-quality monitoring means
31 is positive, the intensities of optical signals in
32 a WDM signal that is to be transmitted in said second
33 WDM optical network by adjusting amounts of
34 preemphasis that is to be performed on said second
35 WDM optical network in such a manner that signal
36 quality information of the last-named WDM signal
37 transmitted in said second WDM optical network
38 becomes greater than said last-named threshold
39 value.

1 18. A WDM transmission system according to
2 claim 17, whrerein said signal-quality-information
3 collecting means periodically collects said signal
4 quality information.

1 19. A WDM transmission system according to
2 claim 17, whrerein
3 said variation factor monitoring means of
4 said central controller further includes
5 alarm-information receiving means for receiving,
6 as one of said variation factors, alarm information

7 of an alarm issued over the WDM signal transmitted
8 in each said WDM optical network; and
9 said signal-quality-information collecting
10 means starts, upon receipt of said alarm by said
11 alarm receiving means, the collecting of said signal
12 quality information of the WDM signal transmitted
13 in each said optical network, which issued said
14 received alarm information.

1 20. A WDM transmission system according to
2 claim 18, wherein
3 said variation factor monitoring means of
4 said central controller further includes
5 alarm-information receiving means for receiving,
6 as one of said variation factors, alarm information
7 of an alarm issued over the WDM signal transmitted
8 in each said WDM optical network; and
9 said signal-quality-information collecting
10 means starts, upon receipt of said alarm by said
11 alarm receiving means, the collecting of said signal
12 quality information of the WDM signal transmitted
13 in each said optical network, which issued said
14 received alarm information.

1 21. A central controller, which is
2 communicably connected, via a plurality of
3 monitor/control lines respectively, to each of a

4 plurality of WDM (Wavelength Division Multiplexed)
5 optical networks, each of the WDM optical network
6 including an optical signal receiver and an optical
7 signal transmitter, communicably connected to the
8 optical signal receiver, for transmitting, to the
9 optical signal receiver, a WDM signal having a
10 plurality of optical signals at respective different
11 wavelengths with adjusting each of intensities of
12 the plural optical signals by performing preemphasis,
13 said controller comprising:

14 variation factor monitoring means for
15 monitoring one or more variation factors which
16 requires a new setting for said preemphasis
17 performed by the optical signal transmitter of each
18 of the WDM optical networks; and

19 preemphasis controlling means for
20 controlling controlling a status of said preemphasis
21 by adjusting said setting for said preemphasis
22 performed by the optical signal transmitter of each
23 of the WDM optical networks via respective one of
24 the plural monitor/control lines based on the result
25 of the monitoring carried out by said variation
26 factor monitoring means.

1 22. A method for controlling preemphases in
2 a WDM (Wavelength Division Multiplexed)
3 transmission system comprising a plurality of WDM

4 optical networks, each of the WDM optical networks
5 including an optical signal receiver and an optical
6 signal transmitter, communicably connected to the
7 optical signal receiver, for transmitting, to the
8 optical signal receiver, a WDM signal having a
9 plurality of optical signals at respective different
10 wavelengths, with adjusting each of intensities of
11 the plural optical signals by performing
12 preemphasis, and a central controller communicably
13 connected to each of the plural WDM optical networks
14 via a plurality of monitor/control lines
15 respectively, said method comprising the steps of:

16 at the central controller

17 (a) monitoring one or more variation factors
18 which requires a new setting for said preemphasis
19 performed by the optical signal transmitter of each
20 of the WDM optical networks; and

21 (b) controlling a status of said
22 preemphasis by adjusting the setting for said
23 preemphasis performed by the optical signal
24 transmitter of each of the WDM optical networks via
25 a respective one of the plural monitor/control lines
26 based on the result of the monitoring in said
27 variation factor monitoring step (a).

1 23. A method for controlling preemphasis
2 according to claim 22, further comprising the steps

3 of:

4 at a storing means

5 storing intensity information of intensities

6 of the optical signals at the respective different

7 wavelengths are included in the WDM signal output

8 from the optical signal transmitter of each of the

9 plural WDM signal networks when an initialization

10 for amounts of said preemphasis is performed, and

11 time information of the time when the initialization

12 is performed,

13 said variation factors monitoring step (a)

14 including the step of (a-1) monitoring whether or

15 not a predetermined time period has passed since

16 an initialization of a first optical signal

17 transmitter, which is the optical signal transmitter

18 of one of the plural WDM optical networks based on

19 the time information stored in said storing step,

20 said optical transmitters controlling step

21 (b) including the step of (b-1) controlling, if the

22 result of said monitoring by said monitoring step

23 (a-1) is positive, intensities of optical signals

24 in a WDM signal that is to be output from a first

25 optical signal transmitter by adjusting amounts of

26 said preemphasis performed by the first optical

27 signal transmitter in such a manner that the

28 last-named intensities of the optical signals of

29 the first optical signal transmitter become

30 identical with those when the initialization is
31 performed, based on the intensity information stored
32 in said storing step.

1 24. A method for controlling preemphasis
2 according to claim 23,
3 said variation factors monitoring steps (a)
4 further including the step of (a-2) monitoring, as
5 one of the variation factors, whether or not there
6 is a change in the number of wavelengths used for
7 optical signals in the individual WDM signal
8 transmitted in a first particular WDM optical
9 network, which is the WDM optical network of one
10 of the plural WDM networks, by collecting
11 information about the number of optical signals in
12 the WDM signal transmitted in the first WDM optical
13 network; and

14 said optical transmitters controlling step
15 (b) including the steps of:

16 (b-2) computing, if the result of said
17 last-named monitoring step is positive,
18 amounts of preemphasis that is to be performed
19 on a plurality of optical signals of a WDM
20 signal in the first optical network in
21 accordance with the change in the number of
22 optical signals, which is monitored in said
23 last-named monitoring step (a-2), and

24 (b-3) controlling a optical transmitter
25 of the first WDM optical network in such a
26 manner that the first particular network
27 performs preemphasis of the last-named
28 amounts, which has been computed in said
29 amout-of-preemphasis computing step (b-2).

1 25. A method for controlling preemphasis
2 according to claim 23, further comprising the step
3 of collecting, as one of the variation factors,
4 signal quality information about quality of the WDM
5 signal transmitted in each of the WDM optical
6 networks,

7 said variation factors monitoring step (a)
8 further including the step of (a-3) monitoring
9 whether or not the signal quality information of
10 a second WDM optical network, which is the WDM optical
11 network one of the plural WDM optical networks, are
12 equal to or smaller than threshold value previously
13 set for the second WDM network; and

14 said optical transmitter controlling step
15 (b) further including the step of (b-4) controlling,
16 if the result of monitoring in said last-named
17 monitoring step (a-3) is positive, the intensities
18 of optical signals in a WDM signal that is to be
19 transmitted in the second optical transmitter in
20 the second particular WDM network by adjusting

21 amounts of preemphasis that is to be performed on
22 the second WDM optical network in such a manner that
23 said signal quality of the last-named WDM signal
24 transmitted in the second WDM optical network
25 becomes greater than the last-named threshold value
26 for the second optical network.

1 26. A method for controlling preemphasis
2 accprding to claim 24, further comprising the step
3 of collecting, as one of the variation factors,
4 signal quality information about quality of the WDM
5 signal transmitted in each of the WDM optical
6 networks,
7 said variation factors monitoring step (a)
8 further including the step of (a-3) monitoring
9 whether or not the signal quality information of
10 a second WDM optical network, which is the WDM optical
11 network one of the plural WDM optical networks, are
12 equal to or smaller than threshold value previously
13 set for the second WDM network; and
14 said optical transmitter controlling step
15 (b) further including the step of (b-4) controlling,
16 if the result of monitoring in said last-named
17 monitoring step (a-3) is positive, the intensities
18 of optical signals in a WDM signal that is to be
19 transmitted in the second optical transmitter in
20 the second particular WDM network by adjusting

21 amounts of preemphasis that is to be performed on
22 the second WDM optical network in such a manner that
23 said signal quality of the last-named WDM signal
24 transmitted in the second WDM optical network
25 becomes greater than the last-named threshold value
26 for the second optical network.

1 27. A method for controlling preemphasis
2 accprding to claim 22, further comprising the steps
3 of:

4 said variation factors monitoring steps (a)
5 further including the step of (a-2) monitoring, as
6 one of the variation factors, whether or not there
7 is a change in the number of wavelengths used for
8 optical signals in the individual WDM signal
9 transmitted in a first paritcular WDM optical
10 network, which is the WDM optical network of one
11 of the plural WDM networks, by collecting
12 information about the number of optical signals in
13 the WDM signal transmitted in the first WDM optical
14 network; and

15 said optical transmitters controlling step
16 (b) including the steps of :

17 (b-2) computing, if the result of
18 said last-named monitoring step is positive,
19 amounts of preemphasis that is to be performed
20 on a plurality of optical signals of a WDM

21 signal in the first optical network in
22 accordance with the change in the number of
23 optical signals, which is monitored in said
24 last-named monitoring step (a-2), and
25 (b-3) controlling a optical transmitter
26 of the first WDM optical network in such a
27 manner that the first particular network
28 performs preemphasis of the last-named
29 amounts, which has been computed in said
30 amount-of-preemphasis computing step (b-2).

1 28. A method for controlling
2 preemphasis accprding to claim 27, further
3 comprising the step of collecting, as one of
4 the variation factors, signal quality
5 information about quality of the WDM signal
6 transmitted in each of the WDM optical networks,
7 said variation factors monitoring step
8 (a) further including the step of (a-3)
9 monitoring whether or not the signal quality
10 information of a second WDM optical network,
11 which is the WDM optical network one of the
12 plural WDM optical networks, are equal to or
13 smaller than threshold value previously set for
14 the second WDM network; and
15 said optical transmitter controlling
16 step (b) further including the step of (b-4)

17 controlling, if the result of monitoring in said
18 last-named monitoring step (a-3) is positive,
19 the intensities of optical signals in a WDM
20 signal that is to be transmitted in the second
21 optical transmitter in the second particular
22 WDM network by adjusting amounts of preemphasis
23 that is to be performed on the second WDM optical
24 network in such a manner that said signal quality
25 of the last-named WDM signal transmitted in the
26 second WDM optical network becomes greater than
27 the last-named threshold value for the second
28 optical network.

1 29. A method for controlling
2 preemphasis accprding to claim 22, further
3 comprising the step of collecting, as one of
4 the variation factors, signal quality
5 information about quality of the WDM signal
6 transmitted in each of the WDM optical networks,
7 said variation factors monitoring step
8 (a) including the step of (a-3) monitoring
9 whether or not the signal quality information
10 of a second WDM optical network, which is the
11 WDM optical network one of the plural WDM optical
12 networks, are equal to or smaller than threshold
13 value previously set for the second WDM network;
14 and

15 said optical transmitter controlling
16 step (b) including the step of (b-4) controlling,
17 if the result of monitoring in said last-named
18 monitoring step (a-3) is positive, the
19 intensities of optical signals in a WDM signal
20 that is to be transmitted in the second optical
21 transmitter in the second particular WDM
22 network by adjusting amounts of preemphasis
23 that is to be performed on the second WDM optical
24 network in such a manner that said signal quality
25 of the last-named WDM signal transmitted in the
26 second WDM optical network becomes greater than
27 the last-named threshold value for the second
28 optical network.

1 30. A method for controlling
2 preemphasis according to claim 22,
3 said variation factors monitoring step
4 (a) including the step of
5 (a-4) receiving, as one of said
6 variation factors, alarm information
7 about an alarm issued over the WDM signal
8 transmitted in each of the plural WDM
9 optical networks; and
10 (a-5) collecting, upon receipt said
11 alarm information in said alarm
12 receiving step (a-4), said signal

13 quality information of the last-named
14 WDM signal.

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